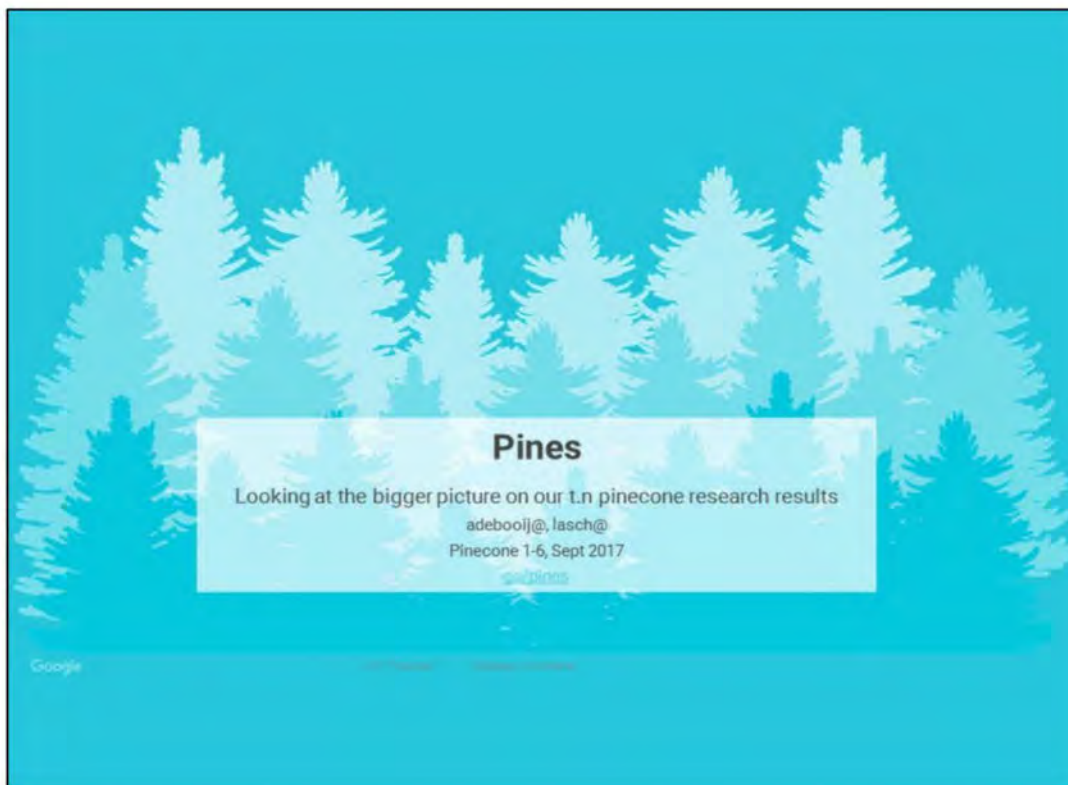


EXHIBIT P
REDACTED
FILED UNDER SEAL



Id	Date	Text
1	05/17/2018 18:55:53	+adeboij@google.com - What was the context of this summary / report? Presentation at trust.next program review? - Do we want to create a new one for Pinecone 7 and beyond? How often should we be summarizing Pinecone studies and results? (is this similar to Durable Insights?) _Assigned to Ame de Booi_

Note

This is a living document. As we gather more research data, we'll update our insights.
Feel free to leave your thoughts here at any point in time.

Thank you,
Anne & Arne

Google

2017 Sundown

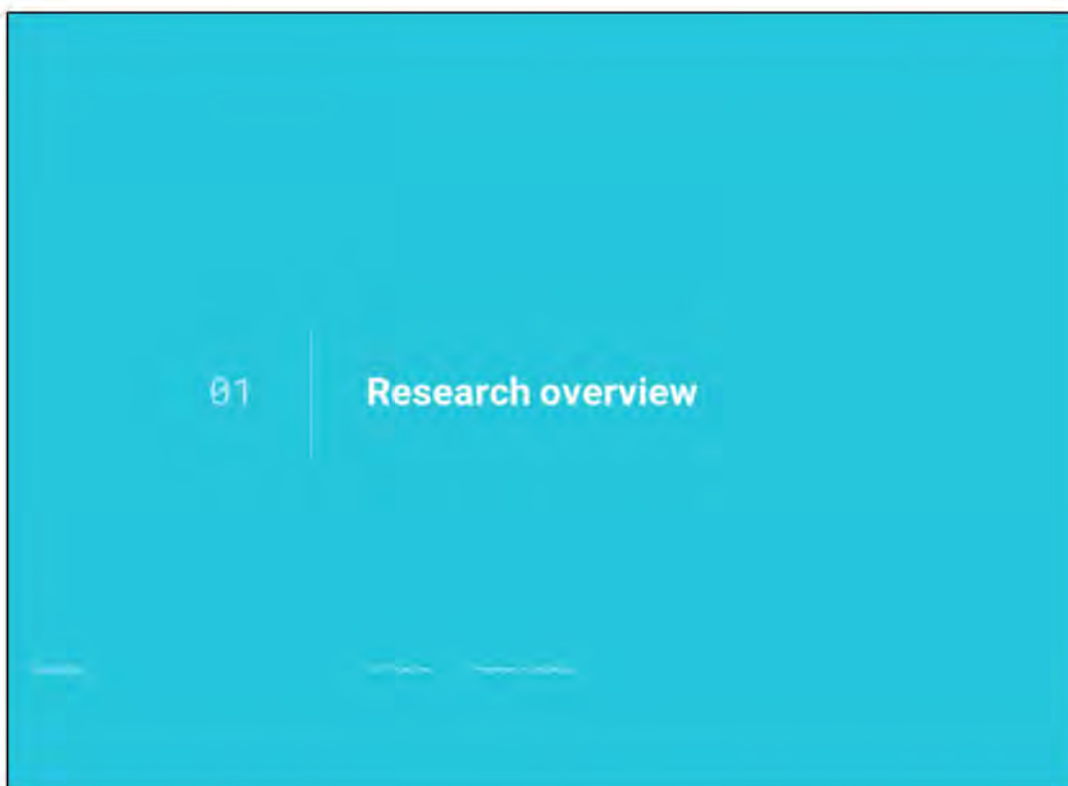
Privacy Policy & Guidelines

1

Content	
01	Research overview
02	Cross trust next insights
03	Key insights by product area
04	Detailed insights

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Participants

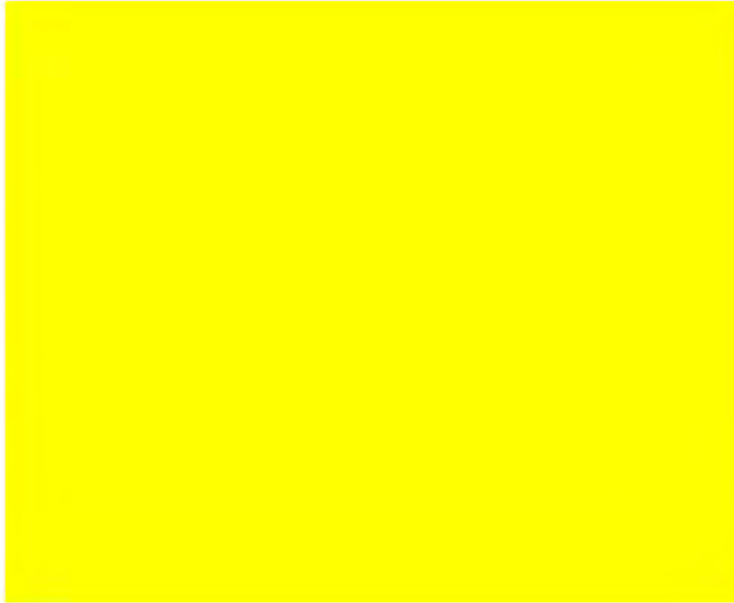
50 people participated in our Pinecone research during H1 of FY17. We had 31 males and 20 females.

Knowledge of online privacy & security was average or above.

Most were somewhat to extremely favorable towards Google. Some were somewhat unfavorable.

Knowledge of technology was average or above.

Google





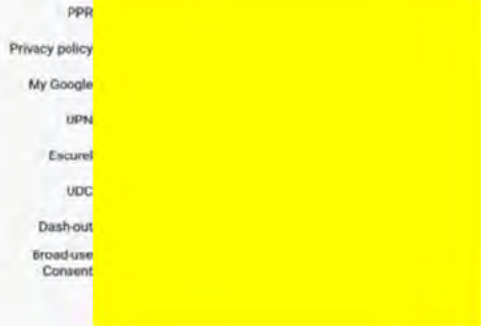
Research topics

Per study, participants interacted with multiple prototypes. A research topic was often part of more than one study.

This graph shows how many of the 54 participants interacted with prototypes for each topic.

*Although broad-use consent wasn't a separate topic in Pioneers 6, it was included as part of Escurel

Participants per topic



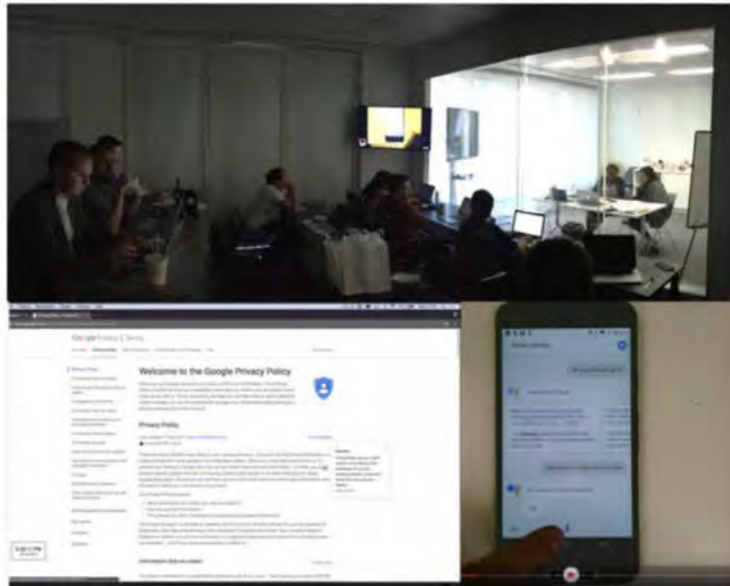
Study setup

People are invited to come to a usability lab and are asked to perform several tasks using prototypes or actual products on a mobile device or on a laptop.

Team members are strongly urged to travel to the research site and observe the session together.

Everything is recorded and non-English spoken language is translated real-time during the study.

Google



Unique team members

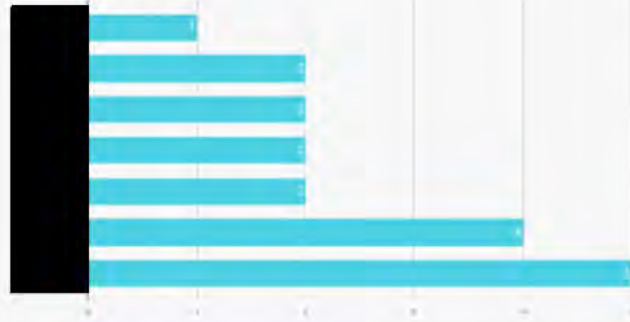
We've had 18 unique team members attend the Ploceom research sessions in person.

Many more joined on GVL.

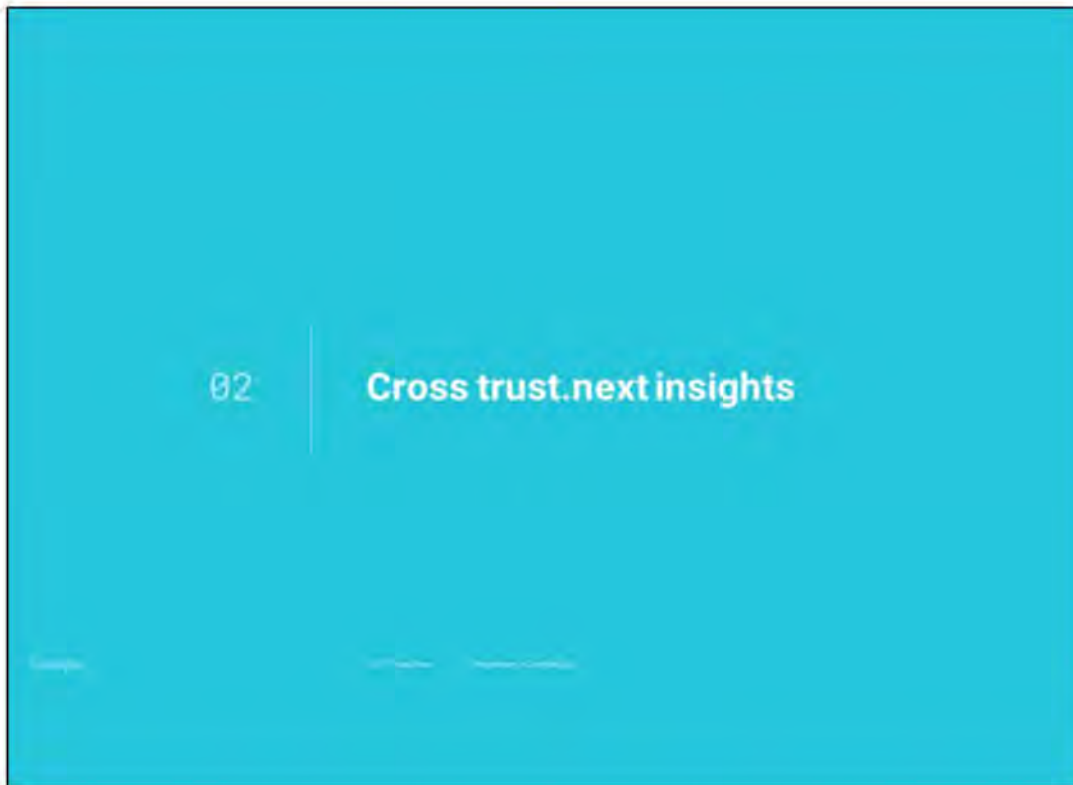
Many joined for more than one of the rounds of research.

It would be great if we can increase these numbers :-)

In-person attendance



Google



Id	Date	Text
1	09/04/2017 15:14:42	+lasch@google.com I've presented a few of these main insights at PR last week (go/pinecone-pr). I am still finishing up the details. When would you have time to finish up the My Google and Dashout slides?

Expectations play a huge role in consent

During [BAC](#), [UDC](#), [Fastmail](#), and [Esense](#) research, we found that it is often hard or impossible for people to formulate (accurate) expectations about how their experience will be impacted by their consent - both for the value they might get & the risk they are taking with providing us with their data.

When expectations are unclear, people will pick the least risky option - which is often the one where they don't consent to us using their data and miss out on value.

Google



What if...

...we gave people a trial period, let them try out how they like their new settings and tell them we will get back to them in a week or two so they can evaluate their experience, form expectations and offer them a choice to reconsider.

UPN ideas align with this. Also, UDC.next is considering ways to make it easier to understand the impact of turning on a setting.


Id	Date	Text
1	09/20/2017 06:45:12	The headline on the left doesn't fully reflect your takeaway. Isn't it more accurate to say something like "Uncertainty leads to risk aversion"?
2	09/20/2017 06:45:12	Yes and no. What I want to convey is that being able to form accurate expectations is a large factor in whether a user will consent or not. The insight below shows what happens when a user can't form that expectation which leads to risk aversion. On the other hand, when they can form accurate expectations, they'll be more comfortable accepting.
2	09/20/2017 06:46:14	Can you edit down the text on the left so both the left and right sides can be the same font size (12).
3	09/20/2017 06:46:14	or I change the font size on the right :)

Transparency can be good, as long as you provide controls

During [UDC UPN](#) (as well as during [PPR](#)), we confronted people with the details of the data Google collects about them. Even though it wasn't their own data, this was scary for some - but we found that people appreciated that we are not hiding things from them.

Providing ways to control this data & its collection will put people at ease and allow people, that really want to, to take control.

Google



What if...

...we made an effort to provide more opportunities to combine transparency with control.

PPR and UPN align with this as well as the ideas that we have explored for UDC where we show UDC controls together with My Activity.

Search is also considering a transparency + control feature.


Id	Date	Text
3	09/20/2017 06:51:26	Based on your description on the right in the first paragraph it sounds like people liked the transparency even before they saw controls. Is that true? What if it was their own data--do you think that would have made a difference?
4	09/20/2017 06:51:26	<p>yes, I would say that was true; Google coming clean about what data we have stored about them. Being honest.</p> <p>With a lot of participants, you could see that they understood that this wasn't their data but as they were using Google as well, it did give them the knowledge that this also means that Google is collecting this data about them as well.</p>

Control is appreciated but people need to realize they have it

During [My Google](#), [BUC](#) and [UDC](#) research, we saw that controls are easily overlooked by people, even when they are linked to personal data. We also found that, and during [UDC](#), having the ability to have more granular control during consent is highly appreciated, sometimes even expected.

If people miss this sense of control, their sentiment might be negatively impacted.

Google



What if...

...we don't hide controls but put them where people can see them in places where we know it matters. We can provide the actual controls, clear entry points to controls or show the status of their controls.

Even if people don't interact with controls, knowing they are there will increase users' perception of Google.

My Google, UPN and PPR are trying to do this and UDC next is also looking into this.

During My Google*, BUC we saw that even when controls are linked with personal data, the options for controls can easily be overlooked. (WIP mocks)

People don't read consent, especially when we interrupt their main goal

During [LDC](#), [BUC](#) and [Esquire](#) (as well as during the Narnia 2.0 research), we found that most people don't read consent text if we show the consent as part of their journey towards achieving their main goal (e.g. read email, use phone).

They just accept, missing the option to perceive control and, if desired, take action.

Google



What if...

...we were smarter about prompting people for consent. Capture them in moments where we know they're not focused on another task.

I fully realize that people might never make a choice if we don't grab them during an existing journey but maybe we can be smart about how we escalate our consents from non-invasive to blocking.

Id	Date	Text
4	09/20/2017 04:55:43	Have you read the Schaub paper on privacy notice recs? Some good ideas. Also talk to Patrick Gage for other suggestions. https://www.usenix.org/system/files/conference/soups2015/soups15-paper-schaub.pdf



If we provide tools purely for the sake of transparency we should let users know to not create wrong expectations.


We incorporated educational content in our products, in a fun, entertaining way. Compared to other products Dashout is about exploration and learning, and not strictly task-driven. So why not use this opportunity to explain how we use all this data for great personalization?

Id	Date	Text
1	09/18/2017 14:30:43	[REDACTED]@google.com added this, but feel free to edit. also done with the rest of my slides.
6	09/18/2017 14:30:43	I made some edits and tied in an insight from UPN and BUC. it does deviate a bit from your original angle but I hope it still applies. What what-if might have to updated too but the core message of how we use this data for personalization (which is value to some) still stands
5	09/20/2017 06:58:55	If people are task/utility-driven, it feels a little counter-intuitive incorporate fun/entertainment. Or perhaps I'm misreading your suggestion? Also, as you know, explaining how we use the data for personalization is easier said than done for many products (e.g., it's easier for Assistant, harder for Search). It would be useful if you could include links to products/suggested UIs that are doing a good job showing the value of data collection, e.g., Google Maps Timeline
5	09/20/2017 06:58:55	[REDACTED]@google.com

For our users, everything we do is connected

When we evaluated the various product areas within a single session, it always struck us that people connected their experience with one topic to another topic.

To anyone but us, they're not interacting with a feature but with Google.

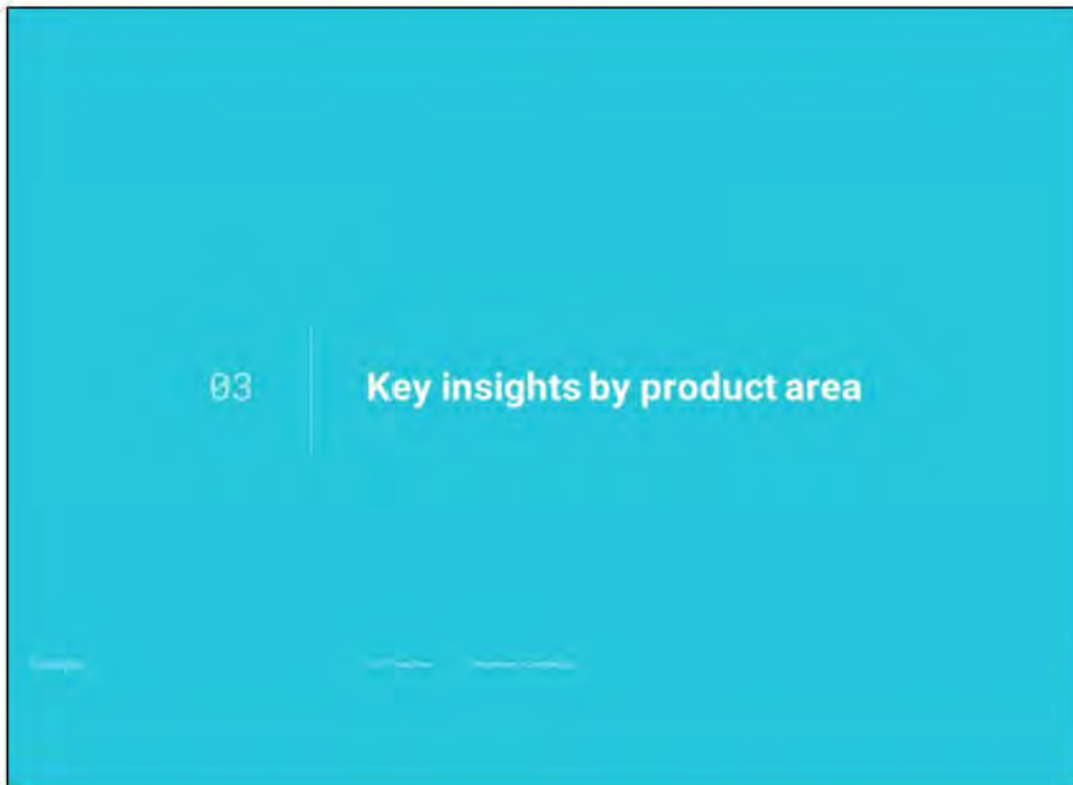


What if...

...we'd stop talking & thinking about features and instead think and talk about how people experience Google. Make their perspective our narrative.

We took a step in this direction with our job stories effort but we can do more with this; e.g. let it propagate to our policy discussions. UX will continue to drive this perspective.

During My Google*, BUC we saw that even when controls are linked with personal data, the options for controls can easily be overlooked. (WIP mocks)



Broad Use Consent

Focused on measuring comprehension of the broad consent flow as well as impact on sentiment.

Main research questions

1. To what extent participants comprehend the consent text
2. To what extent participants comprehend the impact of their choice on their online experience (e.g. the ads they see)
3. How the text impacts attitudes towards Google for privacy, trust and sentiment.

All issues are logged in [Buganizer](#)

Team: [manliia@](#), [dinalendany@](#), [kitoock@](#), [nguyennca@](#), [sdeboodi@](#)



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Broad Use Consent

Comprehension of what will happen with your phone number impacts choice

When people don't have a clear enough expectation of what Google will do with their phone number, this uncertainty influences the choice they will make and, if possible, they will choose the option with the least amount of risk.

[More details](#)

Leading the consent with the most controversial message ensures people don't miss it

For people that take at least some time to read the consent, we learned that by leading the consent with the potentially most controversial message ensures that people don't miss it. Especially with consents that cover more than one use, people often assume the first message covers the entire consent.

[More details](#)

Consent needs to bring clear value to the user, otherwise only risk will guide decision

The main value of Broad-use consent was security, reachability and a more personalized experience with tailored ads.

Besides security, people that read the consent didn't clearly understand and/or see any clear value which resulted in many of these users not consenting to Broad-use Consent.

[More details](#)

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User Data Controls

Measure comprehension of UDC setting in the Consent flow, findability of UDC setting in My Account and usability of changing UDC setting on the Activity Controls page.

Main research questions

1. Do users comprehend what will happen if they turn on the Web & App activity setting (in the context of an app)?
2. Does adding My Activity in UDC setting help comprehension?
3. Can users find WAA in the updated My Account design?
4. Can users find where to turn off WAA?

All issues are logged in [Buganizer](#)

Team: [branimir@](#), [robertbrauer@](#), [osoriosantos@](#), [dcomigan@](#), [adebooi@](#)

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User Data Controls

Combining User Data Controls with the My Activity it controls helps comprehension

We iterated on the design of combining UDC with My Activity on the Activity Controls page in and our final design, combining transparency and control in one view, helped people understand the effect of changing an UDC setting.

This doesn't mean everybody understands 100% but it increased comprehension.

[More details](#)

Google

It is next to impossible for people to understand what they're consenting to, even if they read all text

When people get presented with a UDC dialog in a Consent flow, most don't read it and thus won't know what they're consenting to or what the value is to them. The people who do read it can't explain clearly what the impact of their choice is on their experience on Google.

We put a lot of effort into the text but it is still too complicated for people - because it is.

2017 [User Data Controls](#) Privacy & Confidentiality

People expected to be able to choose during consent for UDC in an app context

When an app, like AGSA, asked for multiple UDC consents at the same time, some people expected choice - to be able to consent to some of the activity controls and not others.

[More details](#)

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Escurel

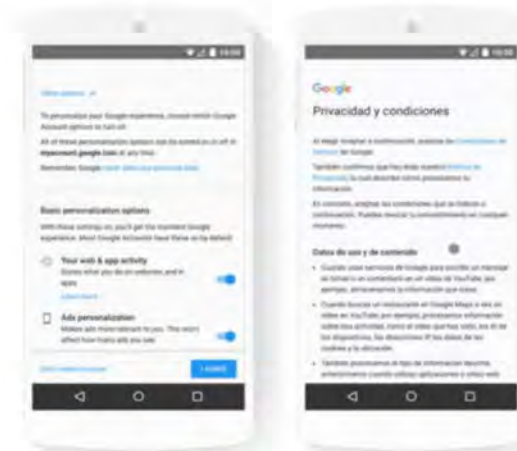
Evaluate user's comprehension of the personalization option when creating a new account.

Main research questions

1. Do users comprehend the options we show them?
 - a. Consequences of turning off or on?
2. Do users understand why Google is offering these options?
3. Do users opt-in or opt-out of options and why?
4. Can users interact with the expanded area?
5. More info pop-ups, why do people open these?

All issues are logged in [Buganizer](#)

Team: [branimii@](#), [robertblauer@](#), [admir@](#), [dcorrigan@](#), [adeboadi@](#)



Google

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Escurel

Google providing choice during account creating is very much appreciated by people

When people discovered that they could make a choice, this feeling of control elicited positive feelings like empowerment. In the past, we have also found that feeling of control is crucial to build trust.

[More details](#)

When given a choice, people will make changes that reduce risk and increase value

When people took a closer look at the Escurel options, almost all decided to make at least one change to the settings. Most turned off a setting that was on by default, reducing their perceived risk. One item that was off by default was turned on by almost half of people, mainly because they thought it would provide them more value.

[More details](#)

It is very hard for people to understand the consequences of their choices

As people make choices in the Escurel area, most thought it would impact their experience on Google but it was very hard for people to verbalize exactly what would change.

This uncertainty requires more trust.

[More details](#)

Google

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Universal Privacy Notices


Evaluate user's comprehension of a "heads up" whenever a new product stores account-based data based on a previously enabled UDC setting.

Main research questions

1. Do users understand why they are getting the UPN?
2. Do users understand the UPN?
3. Do they get the main messages in the UPN?
4. How does getting the message make them feel?
5. What links or buttons do they tap?

All issues are logged in [Buganizer](#)

Team: [branimir@](#), [robertbrauer@](#), [dcorrigan@](#), [escribano@](#), [edebod@](#)



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[go/pinecone2-results](#)

[go/pinecone6-results](#)

Universal Privacy Notices

UPN is highly appreciated by people

When people were presented with the reminder about the state of their security and privacy settings, almost all appreciated this. Some were, at first, somewhat negative because it made them realize the amount and depth of data Google collects (transparency) but even for these, the fact that they can control eased their mind. It might not solve all transparency concerns though.

[More details](#)

Google

Context impacts understanding of scope of data collection and use

When we notified people about the existence of an activity control in the context an app people assumed the control was just for that particular app. They didn't understand that the control applied to all of Google. When we sent a notification to people, most weren't sure why they were getting the notification now. They didn't immediately relate it to an app they just used saving data to their Google account.

[More details](#)

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Benefits of sharing data with Google need to be clear

When we told people about "how their data improves Google services", the message wasn't well understood by half of them. This, in turn, caused these people to not see the benefit to them from Google storing their information.

[More details](#)

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Dashout

Evaluate comprehension and usability of the new Dashboard that provides users with an overview of their data and options to download it

Main research questions

1. Do users understand the data summary overview?
2. Do users understand how to download all or parts of their data?
3. Do users understand how to access additional settings (e.g. activity controls)?
4. Do users understand how to move data to a different service?

Team: gregfair@, nguyencat@, ofeliya@, osoriosantos@, dcorigan@, jasech@



Google

2017 Searcher

Privacy & Security

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Dashout

Users love to see insights, instead of just raw data

While users understand that the Dashboard gives them an overview of their data, some tried to find utility beyond that. Initially they were referring to it as their new homepage giving quick access to Google services, but real value lies in seeing data insights, e.g. showing them how they compare to others or themselves over time.

[More details](#)

3-column design is more appealing and helps to discover functionality

The initial 1-column design wasn't as compelling and visual for users. While users understood the offered functionality, there was little interaction with it. With the new layout we observed more engagement with the Dashboard which led to discovering functionality through exploration.

[More details](#)

Highlighting top 3 services is appreciated, yet, users wish for control

Users understand and liked the difference between top 3 services and the full list as it helped to navigate the content more easily and without being overwhelmed. Users wished though to be able to choose the top 3 services which might just reflect the basic need of feeling in control.

[More details](#)

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81

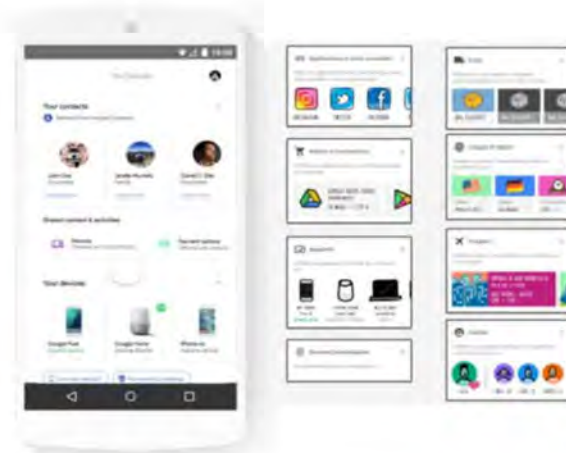
My Google

Evaluate value of information elements presented in My Google

Main research questions

1. Which information elements are perceived as most/least valuable to users?
2. What are situations in which these elements are valuable?
3. Is there information we are currently not offering, but is essential to users to represent their relationship to Google?

Teams: janhani@, ohelysa@, osorioasantos@, dcorrigan@, laech@

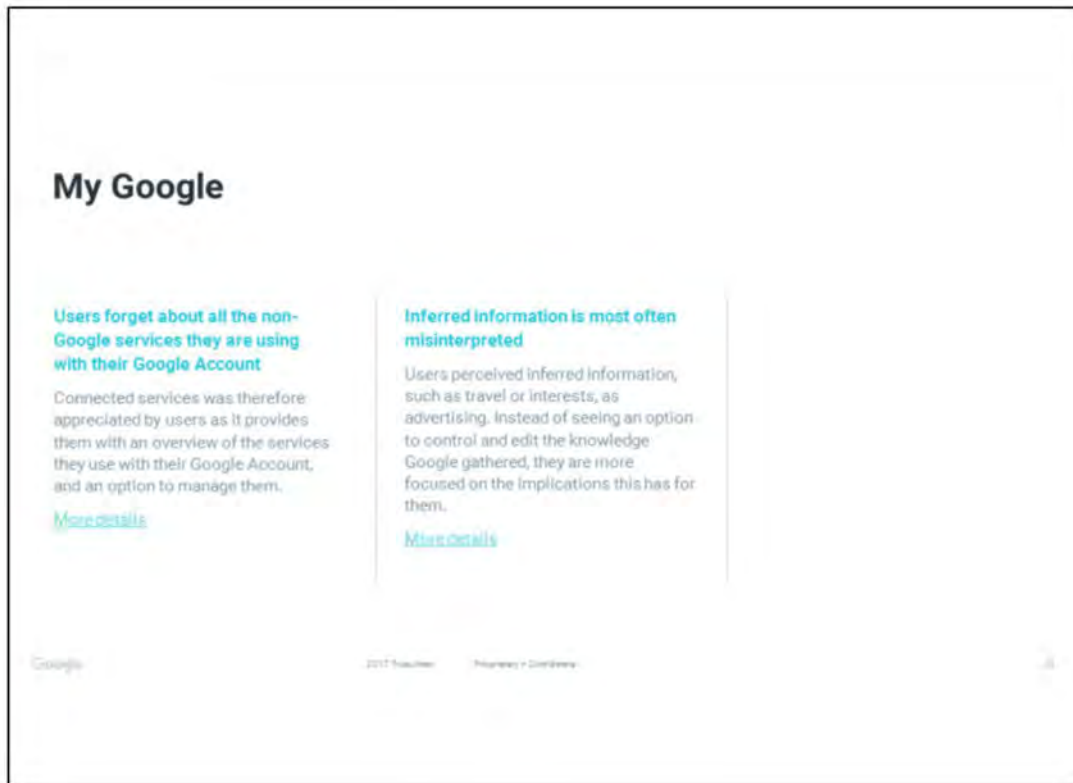


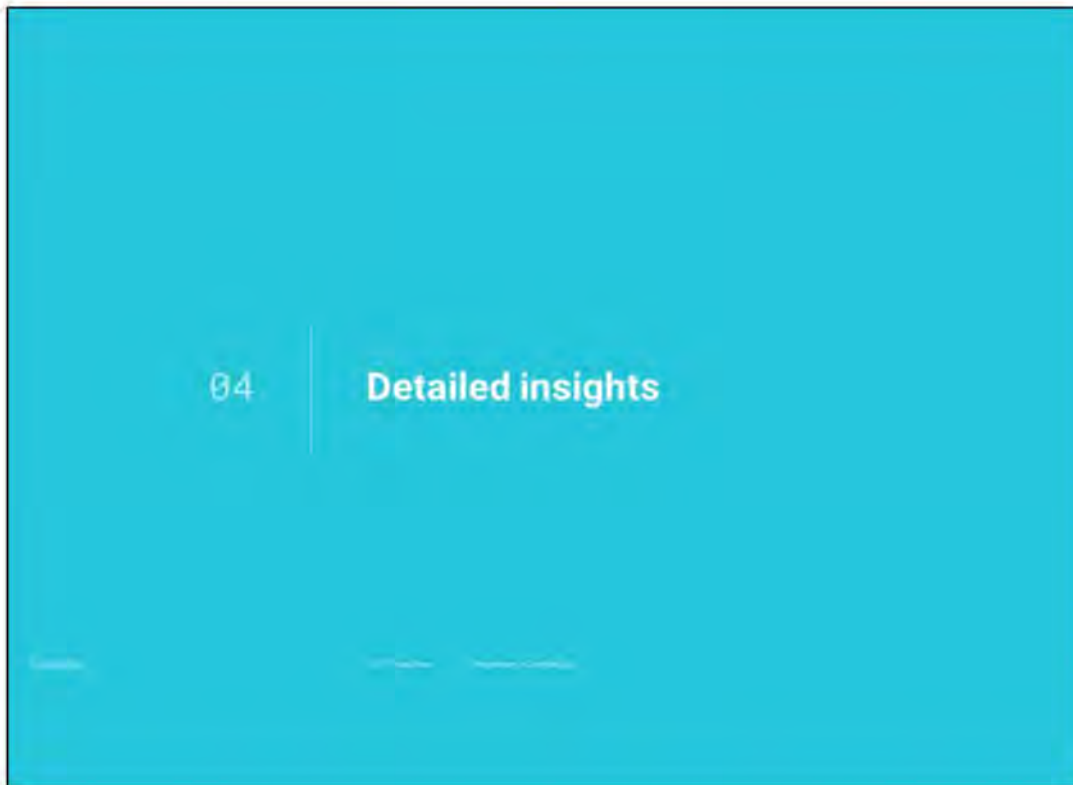
Google

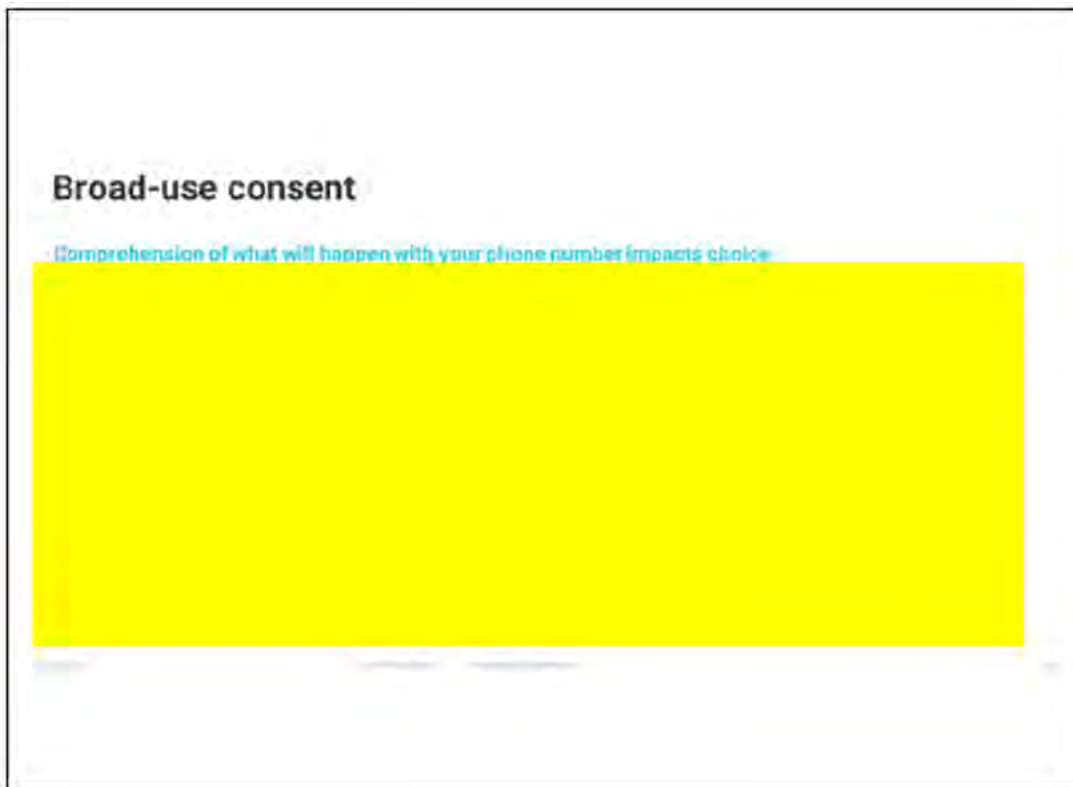
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*2 participants from Pinecone1 were excluded because of moderator error

**49 participants - Pinecone 2 didn't rate this

***42 participants - Pinecone 2&3 didn't rate this explicitly

Id	Date	Text
10	07/17/2017 14:50:28	Need data from BUC experiments here. Also add data from Namia 2.0 here
11	07/17/2017 14:50:28	BUC https://docs.google.com/presentation/d/1ezINVoXkP1-Y6FXhhSqmAhHBpluntTMI5O1U8K9Hg/edit?hl=en#slide=id.g1e971376c7_0_0 Namia https://docs.google.com/spreadsheets/d/1nkSNjCABlg-246fDqKr6Gls1Fmu27KehUYpZecPFZzM/edit#gid=0
8	07/17/2017 14:56:16	https://docs.google.com/document/d/1zbcAQ-zJ5b83FXkb962g2BiqA8cMZEpsmYtvwGkM/edit GB users: 68% would not be willing to share their mobile phone number with a search provider, vs 61% their search history (2012)
7	07/17/2017 15:10:52	Find data on sensitivity of phone numbers
9	07/17/2017 15:10:52	https://www.slideshare.net/BrandLeadershipColumn/what-is-the-future-of-data-sharing People make distinction between types of data 2015 - website history 21%, mobile phone 46% as one of the 3 most sensitive items.



In round 1, 2 participants were excluded from part of the BUC session data because of moderation errors

Id	Date	Text
12	07/17/2017 00:53:18	Do we have behavior for these people? Can we show namia 2.0 data and/or BUC experiment data



In round 1, 2 participants were excluded from part of the BUC session data because of moderation errors

Id	Date	Text
13	07/17/2017 00:53:18	numbers of value or reachability
14	07/17/2017 00:53:18	value of ads too

User Data Controls

Combining User Data Controls with the My Activity it controls helps comprehension of UDC

Observation

In earlier research, we found that people don't understand the effect of changing the state of a UDC setting on the Activity Controls page, as well what PAUSED vs ON meant.

To fix this, we combined the UDC setting with My Activity and initially 2/10 understood the connection

In the 2nd iteration, 10/10 understood the connection but not everybody discovered the Activity as it was pretty far down the page.

In the final iteration, 10/10 people both discovered the Activity unprompted and understood the connection between the setting and the data.

Also, it helped understand the state of the button (ON vs OFF), which confused 5/10 in Pinecone 1.

Analysis

On the Activity Controls page, combining a UDC setting and directly showing what data has been collected because that setting is on shows clear effect of a user's action.


And even though people didn't fully understand the effect of turning on WAA, how it related to sWAA and on their entire Google experience, combining transparency and control in one view at least takes away some of the uncertainty and doesn't hide ways to control (delete) the data.

Google

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Id	Date	Text
15	07/17/2017 00:53:19	data on value of feedback in UI



User Data Controls

It is very hard for people to understand what they're consenting to, even if they read all text

Observation

It was hard for people, when reading the consent text, to understand that data would be collected from all Google products and that this would be used to personalize all products.

For example, during consent flow in Pinecone 3 and Web settings, 14/20 initially did not understand that data would be used to personalize their entire Google experience but more. In Pinecone 3, during consent flow, initially 6/10 did not understand data would be collected from multiple devices.

Source: Google

Comprehension increases when people are asked to re-read the text in detail but topics like what sWAA is or what data is collected or what the data is going to be used for.

Analysis

The amount of text, the unfamiliar terms, multiple devices, sWAA vs WAA, were all causes of this.

When people get presented with a UDC dialog, must don't read it and thus won't know what they're consenting to or what the value is to them.

Source: Google

We're asking a lot of people that do try to read. The way UDC is setup of data collection is fairly complex and we can't talk specifically about how the data will be used by Google, which adds to the confusion.

We put a lot of effort into the text but it is still too complicated for people because it is complicated.

What the hell is going to be collected, that it is across their Google account and that they can turn it off later?

Pinecone 3

Only 3/10 participants understand that their stored activity will be used to personalize their experience in this app as well as other Google apps and services.

6/10 Participants did not understand "data from multiple devices" correctly. Some thought it was about syncing content or settings across devices.

Pinecone 6

3/10 understood that when WAA is turned on, their activity across Google will be stored.

8/10 didn't understand the sWAA text and the effect this could have in their experience but this most likely caused by a translation issue of 'non-Google' to 'third party'

User Data Controls

People expected to be able to choose during consent for UDC in an app context

Observation

During a consent flow when an application, like AGSA, asked for several UDC consents at the same time, 12/20 people expected to be able to consent to some of the items and not others.

"I can't say yes this and no that, I don't want location history"

Analysis

We know that some information is deemed more sensitive than other information. Location seems to be more sensitive than e.g. search history and it seems natural that, when we ask for consent for a lot of different types of information, that people want to choose.

Also, as it is hard to form correct expectations on risk and potential value.

When there is uncertainty, users are prone to want to opt-out and not take the risk of something happening with their sensitive data that they might not want. Better safe than sorry.

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4/10 expected choice in pinecone1, 8/10 in pinecone 3



Emotional user experience and feeling of control, 2014, Jussi P. P. Jokinen
In UX design, supporting feeling of control should be one of the primary goals, as it is evident that a positive UX as a response to the interaction is dependent on the mediating factor of feeling of control.
In other words, feeling of control during a stressful and frustrating interaction should restrain, that is, moderate, the negative emotional response from obstructive task events

https://docs.google.com/presentation/d/1QpaNOnNAvMiWEqG1FOqZMlwPBw8Q3Q_yBJnaEDwhScA/edit#slide=id.g13064756a0_1_880

Escurel

When given a choice, people will make changes that reduce risk and increase value

Observation

When people took a closer look at the Escurel options, **27/29** decided to make at least one change to the settings.

- 14/29 turned off Ads personalization
- 9/29 turned off WAA
- Of these, 6/29 turned off both
- 4/29 turned on Location history
- 8/19 turned on Device information and
- 2/29 turned on Voice & Audio activity

Analysis

As we prompted people to take a closer look at the controls, this doesn't reflect actual behavior on whether people will act on controls.

But, when they do, it seems that they tend to try and reduce potential risk of sharing this information. Turning OFF defaults that were ON is much more common than turning ON defaults that were OFF.

The exception is Device Information, which was turned on by 8/19 people.

We learned that people thought that this was a way to sync contacts and calendar items across devices. And as they saw value in this, they chose to turn this on.

Escurel

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Pinecone 4 - 8/9 participants decided to change the default settings. From those 8 participants that changed the default settings, 6 turned ON settings that were OFF and 3 also turned OFF settings that were ON.

Pinecone 5 - 10/10 participants decided to change the default settings. 3 changed the WAA default setting and turned it OFF, 6 changed the Ads option and turned it OFF, 1 changed the Location option from OFF to ON, 5 changed the Device to ON and 1 turned ON the Voice and Audio.

Pinecone 6 - 9/10 participants decided to change at least one of the default settings.

Id	Date	Text
6	09/20/2017 07:14:49	Were the people who turned "off" things also likely to turn "on" things? Or was there a set of people who turned things off and a set who turned things on? (could be relevant for +mseg@google.com's privacy sensitive segmentation work)
16	09/20/2017 07:14:49	<p>Of the 6 people that turned OFF both settings that were ON by default, only 1 turned ON a setting (location history) that was OFF by default. The rest kept them all OFF.</p> <p>Of the 3 people that only turned OFF WAA, 3 turned ON Device Info, and 1 also turned ON location history.</p> <p>Of the 8 people that only turned OFF Ads Personalization, 1 turned ON VAA and 1 turned ON Device Info.</p> <p>So, people that turn off a setting that is ON by default, are not likely to turn on another setting that is OFF by default.</p> <p>You can see all the behaviors in this sheet.</p> <p>https://docs.google.com/a/google.com/spreadsheets/d/1fHQPOAjqeTIWBIAWAwG0LA_dPF7QdGM6YoanaZMnG70/edit?usp=sharing</p>

Escurel

It is very hard for people to understand the consequences of their choices



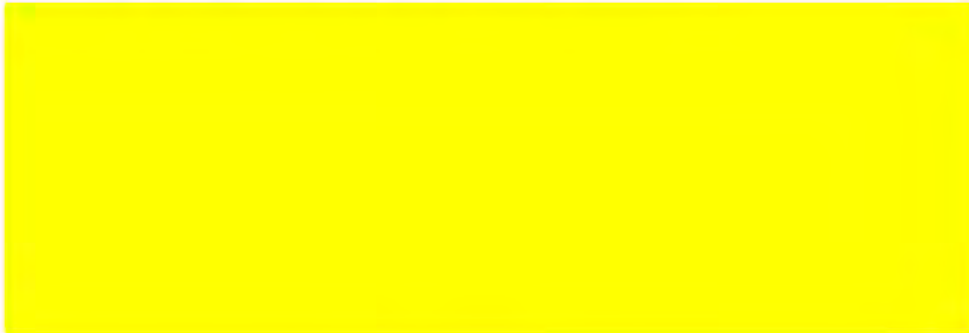
Universal Privacy Notices

UPN is highly appreciated by people



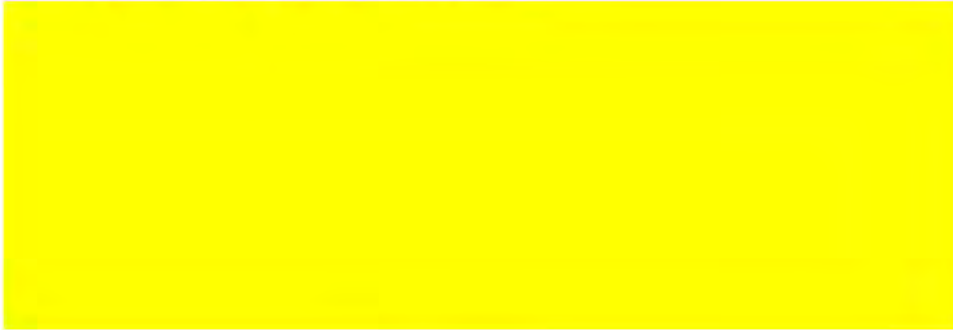
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Context of the notice impacts understanding of scope of data collection and use



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Benefits of sharing data with Google need to be clear



Google



